

PETERSEN'S THIRD COMET.

WASHINGTON, U.S. Equatoreal. (Lieut. M. F. Maury.)

M.T. Washington.				Comet.—Star.		Star of Comp.	No. of Obs.
1850.	h	m	s	R.A.	Dec.		
June 3	10	15	58.7	+7 0.86	+11 45.85	Groombridge 2418	5
				6 5.57	4 57.32	— 2420	5
4	9	59	45.4	3 52.81	+ 2 12.00	— 2411	10
5	10	16	45.1	+3 49.28	—12 51.61	— —	10

Apparent places of stars of comparison on days of observation.

		R.A.			N. Decl.		
		h	m	s	°	'	"
Groombridge	2411	16	59	21.32	73	21	15.99
—	2412	17	3	37.86	73	24	16.78
—	2420	17	4	33.24	73	31	6.89

The place of 2411 is from the Radcliffe Observations, 2418 and 2420 from observation with mural and meridian circle.
The observations are not corrected for refraction or parallax.

HAVERHILL.

(Mr. W. W. Boreham.)

Greenwich M.T.				R.A.		N.P.D.		Stars of Comparison.	
1850.	h	m	s	h	m	°	'		
June 21	10	40	50	15 5 54.61 + p	0.037	26 57	11.1 + p	0.142	Arg. Z. 110, No. 12 and g
22	10	55	44	15 0 28.72	0.043	28 6	0.8	0.100	— 108, No. 66.
23	10	56	46	14 55 15.61	0.045	29 18	53.5	0.067	B.A.C. 4967.
24	10	55	27	50 12.34	0.045	30 36	14.4 + p	0.037	— 4918.
27	11	28	48	36 14.68	0.054	34 59	56.6 — p	0.122	Arg. Z. 5, No. 3.
29	10	37	32	28 12.30	0.043	38 18	39.4	0.126	— 1, No. 21.
July 1	10	10	37	20 40.81	0.038	42 0	0.1	0.172	— 113, No. 33.
2	10	56	52	17 2.68	0.045	44 6	44.7	0.268	— 111, No. 59.
5	10	20	7	7 19.38	0.047	50 40	39.8	0.175	Groomb. 2097, Rad. Obs
7	10	14	28	14 1 27.80	0.038	55 35	19.6	0.463	H.C. 25975.
11	11	4	28	13 51 1.72	0.041	66 30	28.3	0.636	— 25637.
13	10	54	10	46 31.29	0.040	72 12	15.4	0.681	B.A.C. 4634.
15	9	54	26	13 42 18.70 + p	0.039	77 57	23.7 — p	0.701	Weisse xiii. 752.

Professor Smyth of the Royal Observatory, Edinburgh, has kindly observed the star H.C. 33239, 33244, and gives its mean place 1850.48, R.A. 17^h 55^m 50^s.68; N.P.D. 15° 24' 29".1, a small correction will therefore be required to be applied to my observation of May 28.
The observation of June 11, given in the previous number, should stand thus, N.P.D. 19° 6' 8".1 + p 0.306.
June 21: g is the star compared with; this precedes Arg. Z. 110, No. 112, 1^m 46^s.35, and is north of it 3' 17".1.
All the observations after July 2 are corrected for refraction, before this date the position of the comet rendered the correction inappreciable.

DURHAM. Fraunhofer Equatoreal. (Mr. R. C. Carrington.)

1850.	Greenwich M.T.			R.A.			N.P.D.			Set.
	h	m	s	h	m	s	°	'	"	
June 4	11	54	21.6	17	4	17.71	-0°014	p	16 34 20.0	+0.319 p (8)
7	13	24	19.6	16	40	45.73	+0°055	p	17 26 11.7	0.255 p (9)
13	12	23	55.6	15	56	19.92	0°051	p	20 15 6.2	0.201 p (10)
15	12	19	10.0		42	25.91	0°055	p	21 35 0.1	+0.159 p (11)
19	13	17	29.5		16	45.35	0°076	p	24 59 33.4	-0.055 p (12)
20	12	28	2.5	15	11	8.07	0°064	p	25 57 43.5	+0.002 p (13)
22	12	38	30.3	14	59	33.44	0°066	p	28 11 8.0	-0.085 p (14)
24	12	47	12.5		49	50.68	0°066	p	30 42 23.8	0.171 p (15)
	13	21	27.5		49	43.96	0°071	p	44 13.9	0.240 p (16)
26	13	43	11.2		40	18.33	0°068	p	33 36 20.6	0.358 p (17)
27	13	28	36.2		35	58.07	0°065	p	35 8 29.1	0.365 p (18)
28	13	49	9.2		31	42.12	0°064	p	36 48 26.7	0.444 p (19)
29	12	46	1.4		27	51.44	0°059	p	38 27 55.7	0.357 p (20)
July 1	12	43	31.7		20	19.18	0°055	p	42 12 12.4	0.427 p (21)
3	11	25	6.7		13	33.60	0°045	p	46 14 50.9	0.374 p (22)
4	11	35	25.9		10	18.23	0°046	p	48 29 2.7	0.431 p (23)
5	11	45	51.6	14	7	7.19	0°046	p	50 49 22.8	0.486 p (24)
9	10	56	32.7	13	56	0.41	0°039	p	60 55 59.3	0.575 p (25)
10	13	31	18.1		53	11.96	0°042	p	63 58 52.5	0.781 p (26)
13	11	57	54.8		46	22.52	0°040	p	72 21 46.0	0.753 p (27)
15	11	20	36.1	13	42	11.83	+0°038	p	78 8 7.4	-0.786 p (28)

Stars of Comparison.	Assumed Apparent Places.			No. of Diffs. obsd.					
	R.A.			N.P.D.			R.A.	N.P.D.	Set.
	h	m	s	°	'	"			
B.A.C. 5769	16	59	21.63	16	38	44.1	5	1	(8)
Argelander, Zone 124, No. 17	16	38	42.14	17	19	42.8	3	1	(9)
— 116, No. 133	15	54	24.98	20	6	4.1	6	6	(10)
Unknown. See Notes.	15	44	40.16	21	22	18.3	19	4	(11)
— —	15	6	16.21	24	52	44.5	10	2	(12)
Argelander, Zone 112, No. 91	15	9	8.29	25	48	41.2	23	5	(13)
— 108, Mean of Nos. 64 and 66	14	55	23.09	28	18	18.2	15	3	(14)
Unknown. See Notes.	14	45	51.20	30	32	51.1	25	5	(15)
Perhaps Arg. Zone 7, No. 26. See Notes.	14	53	30.46	30	51	55.0	9	2	(16)
Argelander, Zone 5, No. 29	14	35	5.75	33	38	44.9	15	3	(17)
B.A.C. 4845	14	33	31.25	35	19	23.2	30	6	(18)
Unknown. See Notes.	14	36	30.12	36	42	19.6	10	2	(19)
Argelander, Zone 1, No. 22	14	26	42.14	38	18	41.1	28	6	(20)
— 113, No. 33	14	23	26.42	42	9	46.5	32	7	(21)
Unknown. See Notes.	14	16	39.74	46	6	2.6	25	5	(22)
— —	14	17	44.50	48	28	9.0	23	5	(23)
Lalande 25924	14	0	8.09	50	51	43.0	28	6	(24)
— 25780	13	54	33.94	60	51	39.5	40	8	(25)
— 25610	13	47	29.88	64	3	0.5	12	3	(26)
B.A.C. 4634	13	45	21.09	72	31	16.5	30	8	(27)
Unknown. See Notes.	13	46	34.95	78	11	36.7	15	5	(28)

Since the 4th of June a wire micrometer with 5 transit wires and 2 moveable declination wires has been used; previously a bar-micrometer. A succession of sea-fogs and cloudy weather prevented following the comet further. The observations are corrected for refraction. The factors for parallax are given, p being the E. H. parallax in *arc* in both cases. It will be understood that the places of the stars mentioned below are only roughly approximate. Whatever correction may be found to be required by the star must be applied to the comet. Most of the Argelander-stars have been checked by comparison with one or more neighbouring stars.

(Set 9.) The star was not identified on the night of observation, the weather not allowing time.

(10.) Taken on a boisterous night by the help of a hearing tube; the telescope somewhat in vibration.

(11.) The star was the first preceding of a group of five. The second followed in $1^m 13^s.6$, and was Argelander Z. 116, No. 124.

(12.) The star was preceded by another by 70^s , and by $10'.5$ more N. Its place depends on Argelander Z. 112, Nos. 82 and 83.

(14.) Mean taken. The two places in Argelander very discordant.

(15.) The star was preceded by another by $1^m 23^s.2$, and by $5'.0$ more N. Its place depends on Argelander Z. 7, Nos. 11 and 15.

(16.) The star's place depends on Argelander Z. 7, Nos. 21, 23, and 28. It was the s. p. star of an open double; both of 9.10^{th} magnitude. I could not recognise Argelander Z. 7, No. 26; probably it was the star used, its declination being supposed $40''$ in error.

(18.) The minutes of declination of Argelander Z. 5, No. 26, should be $42'$, not $32'$; it is then B.A.C. 4845, the star used.

(19.) The star was of 8th magnitude; its place depends on Argelander Z. 1, No. 38.

(22.) Star depends on Lalande 26358. No. 26582 appears to be about 50^s in error: right ascension *too great* by that amount.

(23.) The star's place depends on Lalande 25937, and through intermediate stars on B.A.C. 4728. Lalande 26041 appears to be 35^s erroneous in right ascension.

(24.) Lalande 25924 and 25925 are identical; the decimal point of the seconds of north polar distance of the latter is misplaced. The mean right ascension of the two appears nearly 2^s too great. Before adopting the above place, I compared the star with B.A.C. 4783, and γ Boötis.

(28.) The star is neither in Bessel or Weisse; it was of 9th magnitude; its place depends on Weisse XIII., Nos. 824 and 995.

Size of the Comet, observed at Durham.

"The state of the atmosphere being very favourable on June 29, a few measures of the extreme diameter of the nebulosity of the comet in the north and south direction were made. The mean result was $2' 6''.3$ on June 29, at $12^h 54^m$ Green. M.T.

"This, reduced approximately by the value of $\log \Delta$ given in D'Arrest's Ephemeris, makes the total diameter of the comet in this direction a little more than four times that of the earth. So far as I could get any impression of the comet's form, I should say it was somewhat elongated in the south-south-following direction, but this was doubtful.

"This was the only night at Durham on which the comet appeared backed by a dark ground: on all other occasions the nebulosity shaded off into the white vapour in the sky. Single measures of the size were made also on June 24 and July 9. They give values a little less than the one above, as was to be expected for the reason stated."

LIVERPOOL.				Equatoreal.			(Mr. Hartnup.)	
1850.	Greenwich M.T.			R.A.			N.P.D.	
	h	m	s	h	m	s	°	'
June 22	12	27	53.1	15	0	7.12	28	10 36.8
26	12	15	35.7	14	40	35.84	33	30 44.6
							5097 B.A.C.	
							♄ Boötis	

The values of the factors for parallax are,—

June 22		Log $\frac{p}{P} = +8.8071$		Log $\frac{q}{P} = -8.4356$	
26		= +8.7720		= -9.1956	
July 4	10 58 2.2	14 10 22.60	48 25 30.2	4812	B.A.C.
7	12 0 56.5	14 1 16.73	55 46 27.9	4808	—
9	12 27 34.0	13 55 51.52	61 6 14.8	4640	—
13	12 17 22.8	13 46 19.63	72 24 8.7	4597	—
14	11 57 52.7	13 44 14.25	75 16 54.2	(a)	
16	10 28 38.2	13 40 16.95	80 56 42.4	(b)	
18	10 43 1.3	13 36 28.36	86 49 9.4	4529	B.A.C.
19	10 34 20.7	13 34 41.56	89 52 10.3	4532	—

The observations in July are corrected for parallax.

The log Δ is taken from M. Sonntag's ephemeris, published in the *Monthly Notices*, vol. x. No. 7.

The following are the assumed places of the stars of comparison for 1850.0.

	Mean R.A.			Mean N.P.D.			Authority.
	h	m	s	°	'	"	
B.A.C. 5097	15	21	35.96	30	30	24.76	Green. 12-year Cat.
♄ Boötis	14	20	5.30	37	27	15.15	— — —
B.A.C. 4812	14	26	2.20	51	2	0.72	— — —
— 4808	14	25	21.85	58	58	4.24	— — —
— 4640	13	46	22.25	60	36	45.90	B.A.C.
— 4597	13	40	8.04	71	47	36.96	Green. 12-year Cat.
(a)	13	48	36.51	75	12	24.81	Comp ^d with 1086, 1147
(b)	13	42	17.42	80	50	38.48	of Green. 12-year Cat.
B.A.C. 4529	13	26	31.87	85	34	7.70	Green. 12-year Cat.
— 4532	13	27	3.25	89	49	38.07	— — —

Elements of Petersen's Third Comet. Calculated by Dr. Petersen and M. Richard Schumacher, May 4, June 6, July 9.

T. 1850, July 23.52220 Greenwich M.T.

π	273 24 20.5	} Mean Eq. 1850.0.
δ	92 53 1.5	
i	68 12 12.5	
Log. q	0.0340197	

Direct.

"It has been impossible to represent the middle observation closer than to 7" in longitude and latitude, but the difference is too small to warrant the conclusion that this is a sign of ellipticity."